

**TECHNICAL REVIEW DOCUMENT  
FOR  
RENEWAL OF OPERATING PERMIT 96OPLR142**

to be issued to:

Platte River Power Authority  
**Rawhide Energy Station**  
Larimer County  
Source ID 0690053

Prepared September, 2005  
Revised September, 2006  
By Cathy Rhodes

**I. Purpose**

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered by the renewal Operating Permit proposed for this site. The original operating permit was issued June 1, 2001 and expires on June 1, 2006. This document is designed for reference during review of the proposed permit by the EPA, the public, and other interested parties. The conclusions made in this report are based on information provided in the renewal application submitted March 28, 2005. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.cdphe.state.co.us/ap/Titlev.html>. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

**II. Source Description**

This facility is located approximately 10 miles north of Wellington, Larimer County, Colorado. The area is classified as an attainment area for all pollutants. Wyoming is an affected state within 50 miles of the facility. There are two Federal Class I areas within 100 kilometers of the facility: Rocky Mountain National Park and Rawah Wilderness Area.

The Title V application reports the facility is not subject to the provisions of the Accidental Release Plan provisions of 112(r)(7) of the Clean Air Act.

The entire plant is categorized as a major stationary source for the Prevention of Significant Deterioration (PSD) provisions. The EPA issued the plant a PSD permit in 1980, which was revised in 1984 and 1992.

The Rawhide Energy Station consists of one tangentially fired coal fired steam driven electric generating unit (Unit 101). The boiler is rated at 3,000 mmBtu/hour (based on hourly coal consumption and average coal Btu content) or 3,500 mmBtu/hour (based on 40 CFR, Part 75 Heat Input calculation). Unit 101, with a rated electric generating capacity of 305 MW (gross), was placed in service in 1984. The boiler is equipped with a fabric filter (baghouse) system for controlling particulate matter (PM) emissions, and a spray dry absorber controls sulfur dioxide (SO<sub>2</sub>). The boiler is equipped with low nitrogen oxide (NO<sub>x</sub>) concentric firing system burners and over fire air configuration for minimization of NO<sub>x</sub> emissions. A review of the file information indicates no major problems with operation or maintenance of the control equipment.

The unit is subject to the provisions of Title IV, the Acid Rain Program, of the Clean Air Act. The permittee has submitted a compliance plan to the EPA for the election of an early reduction of NO<sub>x</sub> emissions. The plan was approved and a Title IV permit was issued in April, 1997. The early reduction election allows the permittee to operate at the specified level until 2008, or until noncompliance with the specified level has been demonstrated.

Associated activities covered by the operating permit include coal, ash, and lime handling systems. In addition, the permittee operates numerous insignificant activities.

The Potential-to-Emit in the following tabulation of emissions are based on the Title V application.

	POTENTIAL TO EMIT, TONS PER YEAR					
	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO
B101 - Unit 101	423	389	1832	6343	54	1,971
P201 - Coal Handling	95	31				
P301 - Ash Handling	58	23				
P401 - Lime Handling	neg	Neg				
P501 - Haul Roads and Soda Ash Silo	13	6				
Total	589	449	1832	6343	54	1,971

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## **II. Discussion of Modifications Made**

### *Source Requested Modifications*

The permittee requested the following revisions to the Operating Permit in their renewal application.

### **Information Page**

Change and Facility Contact Person.

### **Section I**

Condition 1.1 – Change generating capacity from 295 to 305 MW. The permittee has implemented boiler and burner upgrades, and replaced the low pressure turbine at this facility, resulting in increased MW capacity. A construction permit is currently undergoing review to implement this change, and the construction permit requirements are included in this permit. Revise location description to indicate the plant is located 10 miles north of Wellington.

### **Section II**

Condition 1.1 – Requirements for opacity spike and pressure drop monitoring are removed. The Division has determined that these requirements are no longer necessary, because back leak detectors are used.

Condition 1.1.2 – Revise stack testing requirement to reflect annual performance test, in agreement with established Platte River Power testing practices.

Condition 1.3.3 – The definition of boiler operating day is added.

Condition 1.7 – Revised to require measurement of moisture content of the coal, for use in coal handling operation emission estimates.

Condition 1.9 – Revise the lead emission factor to reflect the current AP-42 factor. The permittee performed a one-time modeling exercise which demonstrated compliance with the Regulation No. 8 lead requirements.

Conditions 3.2 and 4.2 – “Abnormal conditions” is defined to occur when the malfunction alarm sounds.

Condition 3.2.1 – The Subpart Y initial compliance test has been completed, therefore the requirement is removed.

Condition 3.3 – Revise PM/PM<sub>10</sub> emission factors for P201 – S201 through S205, and S207 through S210, and S211, to reflect current recommended AP-42 or FIRE factors. In addition, actual moisture and wind speed are used in the AP-42 Chapter 13 “batch or continuous drop operation” equation. For S211 – Coal Conveying, is now treated as an area source. The new emission factors are less than the previous factors.

Revise PM/PM<sub>10</sub> emission factors and corresponding emission limits for S206, Coal Crushing, to reflect current recommended AP-42 or FIRE factors. The new emission factors and limits are less than the previous factors and limits.

Revise emission limit for S213, Inactive Coal Pile Storage Area, to reflect the current FIRE factor. The new emission limit is less than the previous limit.

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Revise emission limit for S212, Active Coal Storage Area, is revised to include other related processes. The revision increases the limit from 14.02 to 72 tons/year PM. The previous emission limit was only for coal pile handling and coal storage. Additional included activities are coal stockout/reclaim dumping, and vehicle travel during stockout/reclaim operations. The original preliminary analysis done by the Division for the Construction Permit included emissions from stockpile erosion, however the permit required the use of water during addition or removal of coal from pile. A review of the original PSD application submitted to the EPA in 1979 indicates that fugitive dust emissions from this source are based only on wind erosion (Table 3C of Appendix I of the PSD permit). Emissions from stockout are included in Table 3C as a separate activity. Although the emissions from vehicle traffic were not included in the original PSD analyses, the emissions from vehicle traffic alone are less than the PSD significant levels.

Condition 3.7 – Update emission factor references.

Condition 4.3 - Revise PM/PM<sub>10</sub> emission factors for P301 – S301 through S304, to reflect current recommended AP-42 or FIRE factors. The new emission factors for S301, silo filling are greater than the previous factors. Emissions increase from 0.13/0.087 tons/year PM/PM<sub>10</sub> to 1.17/0.41 tons/year PM/PM<sub>10</sub>. Increases in emissions which are due solely to changes in emission factors are not considered to be subject to PSD requirements. The emission factors for S303 and S304 are lower than the previous factors.

Condition 4.4 – Regulation No. 1 language regarding off-property visible emission transport is added.

Condition 4.5 – Update emission factor references.

Condition 5.2 – Revise to indicate that only S401 exhausts inside the building. Opacity monitoring requirements consistent with other units subject to the opacity limits are added for S402.

Conditions 5.3 and 5.4 - Revise PM/PM<sub>10</sub> emission factors for P401 – S401 and S402 (and corresponding emission limits for S402), to reflect current recommended AP-42 or FIRE factors. The new emission factors are greater than the previous factors. Emissions increase from 0.00004/0.00002 ton/year PM/PM<sub>10</sub> to 0.046/0.023 ton/year PM/PM<sub>10</sub> for S401 and from 0.214/0.123 ton/year PM/PM<sub>10</sub> to 2.75/0.96 tons/year PM/PM<sub>10</sub> for S402. Increases in emissions which are due solely to changes in emission factors are not considered to be subject to PSD requirements.

Condition 5.3 – Update emission factor references.

Condition 6.3 - Revise PM/PM<sub>10</sub> emission factors for P501 – S502, to reflect current recommended AP-42 or FIRE factors. The new emission factors are greater than the previous factors. Emissions increase from 0.00005/0.00003 ton/year PM/PM<sub>10</sub> to

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0.08/0.03 ton/year PM/PM<sub>10</sub>. Increases in emissions which are due solely to changes in emission factors are not considered to be subject to PSD requirements.

Condition 6.3 – Update emission factor references.

Condition 15 and Appendix J - Compliance Assurance Monitoring

The following units have emission limits and use add on control equipment to meet those limits. In addition, uncontrolled emissions exceed 100 tons/year for that pollutant (10 tpy for HAPs).

S101 – Boiler: Add on control equipment is used to meet the SO<sub>2</sub> limits, however a CEMS has been used to monitor compliance with all SO<sub>2</sub> limits, therefore CAM does not apply to the SO<sub>2</sub> limits.

A baghouse controls PM/PM<sub>10</sub> and lead emissions. The unit is subject to a 0.03 lb/mmBtu limit for PM. The PM limit is subject to the CAM requirements. (The unit is subject to a lead standard, however, uncontrolled lead emissions are less than 10 tons/year)

The application indicates that S301 – Solids Waste Storage Silo Filling is subject to CAM. S301 does not have an emission limit, except for an opacity limit. Opacity limits are not subject to CAM, therefore CAM does not apply to this activity.

S402 – Recycle Ash Silo Filling is subject to PM/PM<sub>10</sub> ton/year limits. A baghouse controls emissions. The ton/year limits are subject to CAM.

The application includes a CAM plan for these units. The proposal is incorporated into the Division's standard CAM format in the operating permit. (Condition 15 and Appendix J).

Conditions 1.1 and 5.4 – Monitoring method is revised to indicate the emission limit is subject to the CAM requirements.

#### *Other Modifications*

The following revisions are made to the permit consistent with recently issued permits, to include comments made by the EPA on other Operating Permits, to reflect updated and current Regulatory language, as well as to correct errors or omissions identified during review of the modification.

#### **Information Page**

Add note regarding when reports are due.

#### **Section I**

Condition 2.1 - Revised to reflect current Division permit language

Conditions 3.1 and 4.1 – Revised to reflect current Division permit language.

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Condition 5 – Revised to indicate which units are now subject to CAM.

## **Section II**

Condition 1.1 – Revise stack test language to reflect current Division permit language.

Conditions 1.10, 1.11, 10.1 and 10.2 – Revise opacity language to reflect current Regulation No. 1 and Division policy language

Conditions 3.2.2, 5.2, 6.2, Delete: “If such observation indicates an exceedance of the opacity limit, Method 9 observations shall be performed until two consecutive observations are in compliance.”

Conditions 3.4, 3.5.2, 3.6.2, 4.4, and 6.4 – Delete the requirement to include a separate statement for fugitive emissions control in the Annual Compliance report.

Condition 13 – Add Regulation No. 3 references.

## **Section III**

The EPA has published revisions to the acid rain rules, which eliminates the Phase II Annual Compliance Certification Report requirement. The annual report submittal deadlines and Condition 3 annual report requirements are removed from this permit.

## **Section IV**

Update Regulation No. 3 cites.

Revise CAM shield to indicate it does not apply to PM/PM<sub>10</sub> limits for S101 or S402.

## **Section V**

Revised to incorporate most recent General Conditions, to reflect new Regulation No. 3 formatting.

## **Appendices B and C**

Incorporate Division’s latest versions.

## **Appendix H**

Revise due date language for semi-annual and annual reports.

Revise APEN Section V cite.